ABSTRACT

[Summary]

The present invention relates to a solid electrolyte having a good conductivity to lithium ion by allowing the liquid components and lithium salts to be absorbed into the electrolyte film containing an absorbents added at the time of its preparation and having a porosity, a process for preparing the same and a rechargeable lithium cell using the same as an electrolyte. As the absorbent, inorganic materials having not more than 40 μm of particle size can be used. As the polymer binder, any binder of whom solubility against the liquid electrolyte is small can be used. A wet process can introduce the porous structure of the electrolyte film. The solid electrolyte according to the present invention has the ionic conductivity of more than approximately 1 to 3 x 10^{-3} S/cm at room temperature and low reactivity to lithium metal. The cell is fabricated from the solid electrolyte together with electrodes by lamination or pressing methods and, the liquid electrolyte, which is decomposed by moisture, is introduced to a cell just before packaging. Therefore, the solid electrolyte according to the present invention is not affected by the humidity and temperature conditions during the manufacturing of the electrolyte film. In addition, the solid electrolyte according to the present invention has high thermal, mechanical and electrochemical stability, and thus is suitable as an electrolyte for rechargeable lithium cells.

[Representative Drawing]

Fig. 2